

Appl. No. : 09/786,100
Filed : May 21, 2001

REMARKS

Discussion of Rejections Under 35 USC §103(a)

The Examiner has rejected Claims 1 and 3-9 under 35 USC §103(a) as allegedly unpatentable over Nakajima, et al. (JP 10-010380) in view of Mogami, et al. (U.S. 5,684,071). Additionally, the Examiner rejected Claims 1, 4 and 7-9 under 35 USC §103(a) as allegedly unpatentable over Nakajima in view of Breant, et al. (U.S. 6,025,423). Applicant respectfully contends that there is no motivation to combine the teachings Nakajima with either Mogami or Breant, and even if combined, the combination of the references fail to teach each and every element of the claims. Applicant respectfully requests reconsideration and allowance of the pending claims.

Discussion of the Nakajima Reference

Nakajima describes a single core optical fiber cord having an outside diameter of 1 mm and a thermoplastic resin sheath. *Nakajima* Abstract. However, as conceded by the Examiner, Nakajima fails to disclose the properties or the composition of the sheath.

Discussion of the Mogami Reference

Mogami describes an additive having improved dispersibility and adhesion property for thermoplastic resins. *Mogami* Abstract. The additive includes a thermoplastic polyester, a heterocyclic compound containing a nitrogen atom or salt thereof, a compound having at least two functional groups, and a phosphorous based flame retarder. *Id.* Mogami discloses a number of examples where the resin is polyethelyne terephthalate (PET). *Id.* at Col. 13, ll. 57-59. However, Mogami fails to disclose polyamide-series thermoplastic resins, polyamide elastomer-series thermoplastic resins or polyester elastomer-series thermoplastic resins.

Discussion of the Breant Reference

Breant discloses a flexible thermoplastic composition having a polyamide matrix, a dispersed polyethylene phase, and flame retardant agents. *Breant* Abstract. Breant discloses fire resistance using polyols in combination with nitrogen containing functional groups, such as melamine cyanurate. Breant also discloses fire resistance using polyols in combination with

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phosphorus containing functional groups, such as ammonium phosphate. *Id.* at Col. 4 line 65 through Col. 5 line 3. Breant discloses that the effectiveness of the polyol composition may be improved by the joint use of additives such as antimony oxide or various zeolites. *Id.* at Col. 5 ll. 3-5. Breant discloses that the overall content by mass of the polyol composition with the antimony oxide or zeolites is greater than 25% by mass. However, Breant fails to disclose a content of ammonium phosphate. Additionally, Breant fails to disclose the use of ammonium phosphate in combination with a nitrogen containing compound as a fire retardant.

Analysis of Claim Rejections

Claim 1 recites an optical fiber cord. The optical fiber cord comprises a coating layer and “the coating layer is formed by a composition in which 18-60 parts by mass of ammonium polyphosphate is blended with 100 parts by mass of a resin component containing at least one selected from the group consisting of polyamide-series thermoplastic resins, polyamide elastomer-series thermoplastic resins and polyester elastomer-series thermoplastic resins.” Neither Nakajima in combination with Mogami nor Nakajima in combination with Breant disclose every aspect of this claimed feature.

Nakajima in combination with Mogami fails to disclose a polyamide-series thermoplastic resins, polyamide elastomer-series thermoplastic resins or a polyester elastomer-series thermoplastic resins. It is undisputed that Mogami fails to disclose a polyamide-series thermoplastic resins or a polyamide elastomer-series thermoplastic resins. Furthermore, as explained below, the resin disclosed in Mogami does not suggest use of the claimed polyester elastomer-series thermoplastic resin.

Mogami discloses a polyester resin and provides examples using a PET thermoplastic resin. *Mogami* Table 1. PET thermoplastic resin is a very hard resin at room temperature. In contrast, a polyester elastomer-series thermoplastic resin is a polymer material that shows rubber elasticity at room temperature. The polyester elastomer-series thermoplastic resin is soft at room temperature. The use of a hard material such as PET would be contrary to the bending properties desired of the optical cord, as described in the specification at page 18 lines 2-17 of the English translation. Thus, one of ordinary skill in the art would not be motivated to use the polyester resin disclosed in Mogami, such as PET, for a coating layer.

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Additionally, there is no motivation to use the resin composition disclosed in Mogami as a coating layer for a fiber cord. Mogami states that "the polyester resin composition of the invention is suitably used...in breaker parts, switch parts, electric motor parts, ignition coil case, power supply plug, power supply receptacle, coil bobbin, connector terminal, fuse box, and the like." *Mogami* Col. 13 ll. 33-40. Thus, Mogami describes the resin composition as used for parts. Moreover, the parts are large scale parts that are far greater in scale than the coating layer of a fiber cord. Mogami does not describe or even suggest that the resin composition can be used for anything other than molded parts. Thus, there is no motivation to combine the resin composition with a reference that teaches a 1 mm diameter fiber cord to produce a fiber cord having a coating layer comprising the resin composition. Furthermore, as described earlier, the combination fails to disclose each and every claimed feature.

Thus, there is no motivation to combine Nakajima with Mogami, and the combination of Nakajima with Mogami fails to disclose or suggest each and every claimed feature. Thus, Claim 1 is believed to be allowable over Nakajima and Mogami, either alone or in combination. Because Claim 4 includes features of the resin component that are similar to Claim 1, Applicant respectfully believes that Claim 4 is also allowable.

As described above, Claim 1 includes a coating layer "formed by a composition in which 18-60 parts by mass of ammonium polyphosphate is blended with 100 parts by mass of a resin component containing at least one selected from the group consisting of polyamide-series thermoplastic resins, polyamide elastomer-series thermoplastic resins and polyester elastomer-series thermoplastic resins."

Breant discloses the use of polyols in combination with phosphorous containing functional groups, such as ammonium phosphate. *Breant* Col. 4 line 65 through Col. 5 line 3. Breant discloses that the effectiveness of the polyol composition may be improved by the joint use of additives such as antimony oxide or various zeolites. *Id.* at Col. 5 ll. 3-5. Breant discloses that the overall content by mass of the polyol composition with the antimony oxide or zeolites is greater than 25% by mass. However, Breant discloses the overall content of the polyol composition and fails to disclose a content of ammonium phosphate relative to resin component. Thus, the claimed relationship of ammonium phosphate to resin content is not disclosed in Breant. Moreover, the claimed ammonium phosphate content is not obvious from the disclosure

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in Breant. None of the examples provided in Breant disclose ammonium phosphate. There is no suggestion in Breant as to the range of ammonium phosphate relative to resin or the range of ammonium phosphate relative to polyols, antimony oxide, or various zeolites. As disclosed in Applicant's specification at page 15 ll.2-11, the range of ammonium phosphate is related to both the fire retardant property and the bending property. Breant does not even address the possibility of the fire retardant additives affecting the bending property and thus, does not provide a suggestion for a desired range of ammonium phosphate.

Thus, Breant fails to disclose or suggest "18-60 parts by mass of ammonium polyphosphate is blended with 100 parts by mass of a resin component" and thus the combination of Nakajima with Breant, either alone or in combination, fails to disclose all claimed elements. Applicant respectfully requests allowance of Claim 1.

Claim 4 includes a coating layer "formed by a composition in which 18-60 parts by mass of a fire retardant, which consists of ammonium polyphosphate and a nitrogen-containing compound, is blended with 100 parts by mass of a resin component". Breant fails to disclose a fire retardant agent that consists of ammonium polyphosphate and a nitrogen-containing compound. The fire retardant agents disclosed in Breant include polyols with products carrying phosphorous containing functional groups and polyols with products carrying nitrogen containing functional groups, but does not disclose ammonium polyphosphate in combination with a nitrogen containing compound. Furthermore, similar to Claim 1, Breant fails to disclose or suggest a ratio of ammonium phosphate and nitrogen containing compound relative to the resin component. Thus, the combination of Nakajima with Breant, either alone or in combination, fails to disclose all claimed elements and Applicant respectfully requests allowance of Claim 4.

Applicant respectfully requests allowance of Claims 1 and 4 because Nakajima, Mogami, and Breant, either alone or in combination, fail to disclose or suggest all claimed features. Claims 3 and 5-9 depend, either directly or indirectly, from one of Claims 1 or 4. Thus, Claims 3 and 5-9 are believed to be allowable at least for the reason that they depend from an allowable base claim. Applicant respectfully requests reconsideration and allowance of Claims 3 and 5-9.

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CONCLUSION

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, arguments in support of the patentability of the pending claim set are presented above. In light of these remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. Applicant submits that the claim limitations discussed above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

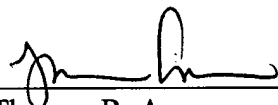
If there are any impediments to allowance of the claims that can be resolved with a telephone call, the Examiner is respectfully invited to call the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 6/5/03

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